Statement of Basis
University of Guam Marine Laboratory
NPDES No. GU0020168

I. DESCRIPTION OF FACILITY:

The Permittee presently operates the University of Guam Marine Laboratory located on the eastern shore of the island of Guam in Mangilao. The permittee expanded to provide extra space for aquaria in 1999. In order to supply these additional aquaria with seawater, the capacity of seawater pumps was increased to 0.432 million gallons per day (MGD). Discharge Serial No. 001 discharges seawater from the W-lanai while Serial No. 002 (located approximately 200 feet away from Serial No. 001) discharges seawater from the E-lanai extension. Each outfall has an average discharge rate of 0.216 MGD.

Based on the data provided by the permittee, the discharge has the following characteristics for total suspended solids and pH from Outfall Serial No. 001.

Discharge Parameter	Units	Annual Average
Flow	MGD	0.215
Total Suspended Solids	mg/L	4.22 mg/L
pH	units	7.59 minimum/8.31 maximum

and from Outfall Serial No. 002

Discharge Parameter	Units	Annual Average
Flow	MGD	0.121
Total Suspended Solids	mg/L	3.36 mg/L
pH	units	7.50 minimum/8.33 maximum

Aquaria circulation water effluent from the seawater system is discharged to Category M-2 (Good) receiving waters named Pago Bay, of the Pacific Ocean. (Category M-2 waters must be of sufficient quality to allow for the propagation and survival of marine waters, particularly shellfish, corals, and other reef related resources. Other important and intended uses include mariculture activities, aesthetic enjoyment and compatible recreation inclusive of whole body contact and related activities). Discharge points are described as follows:

Discharge Serial No.	North Latitude	East Longitude	Description
001	13° 25' 36" N	144° 47' 44" E	Pago Bay of the Pacific Ocean.
002	13° 25' 36" N	144° 47' 44" E	Pago Bay of the Pacific Ocean about 200 feet from Discharge Serial No. 001

The discharge is currently regulated under NPDES Permit No. GU 0020168, issued October 31, 1999 and expired at midnight, October 30, 2004. Since a timely application for permit renewal was received on or about October 14, 2004 the permit validity has been administratively extended to the date it is renewed. The facility contact is:

Barry D. Smith, Director
University of Guam Marine Laboratory
UOG Station
Mangilao, Guam 96923

II. BASIS OF EFFLUENT LIMITATIONS:

If national treatment standards for a discharge category have not been developed by the U.S. Environmental Protection Agency, then the permitting authority must evaluate treatment technologies applicable to the discharge using Best Professional Judgement (BPJ) (See 40 CFR 125.3). The previous permit contains discharge limitations (in mg/L) for total suspended solids based on BPJ established by USEPA Region 9 in 1999. The updated BPJ requirement for total suspended solids (in lbs/day) contained in the permit are necessary to assure no violation of applicable treatment standards and are consistent with Section 402(o)(2) of the CWA.

The Revised *Guam Water Quality Standards* (WQS), amended and adopted in 2001, contain water quality standards (categories and criteria) for waters of the Territory. In accordance with 40 CFR 122.4(d), the need for discharge limitations based on water quality criteria in applicable WQS must be evaluated. As part of this evaluation, projected receiving water values – based on reported maximum discharge values (expressed in units of concentration) – are compared to appropriate water quality criteria to determine the "reasonable potential" for criteria exceedances and the need for discharge limitations. Because this discharge has not been granted a mixing zone by GEPA, dilution (expressed as parts seawater per part wastewater) is not considered in this evaluation and projected receiving water values are calculated using the following steady state equation: Cr = Ce, where "Ce" is the reported maximum discharge value (in mg/L) and "Cr" is the projected receiving water value which was established by USEPA Region 9 in the previous permit and, consistent with federal anti-backsliding requirements in Section 402(o)(2) of the CWA and 40 CFR 122.44(l)(1), is continued in the current permit. Other receiving water requirements contained in the permit are necessary to

assure no violation of applicable WQS in Category M-2 receiving waters of Pago Bay influenced by the discharge.

To summarize, the permit contains the following discharge limitations for total suspended solids and pH

Discharge Parameter	Average Monthly	Average Monthly	Units
Total Suspended Solids	n/a 22.3	15 n/a	mg/L lbs/day
pH	Not less than 6.5 units nor greater than 8.5		units

The proposed discharge limitations for total suspended solids (in mg/L) is based on BPJ established by USEPA Region 9 in 1992. The proposed discharge for pH is based on the 2001 Revisions to the Guam WQS. The proposed discharge limitations for total suspended solids (in lbs/day) is based on the reported minimum treatment system performance of 12.4 mg/L and an average flow of 0.216 MGD and the following equation: 8.34 x 12.4 mg/L x 0.216 MGD.

In addition to monitoring the parameters with discharge limitations shown above, the permit proposes discharge monitoring requirements for nutrients, salinity and temperature. Influent monitoring for these parameters is not required. The permit also contains a discharge monitoring requirement for whole effluent toxicity (acute) and conditions which trigger additional acute toxicity monitoring and/or a toxicity reduction evaluation (TRE) should the presence of acute toxicity be indicated. Consistent with the applicable WQS, the draft permit proposes a "no acute toxicity" discharge value (the trigger) in 100 percent effluent which is evaluated using a single-concentration toxicity test result (reported as pass/fail), rather than a multi-concentration test result (reported as a point estimate, e.g., LC_{50}). While this approach does not yield information regarding the level of toxicity present in the diluted effluent, USEPA Region 9 believes that this approach provides a reasonable balance between the need for reasonable discharge monitoring and cost savings resulting from the use of single-concentration rather than multi-concentration testing. If toxicity (as defined0 is detected, then additional multi-concentration testing may be recommended by USEPA Region 9

Finally, although monitoring data provided by the permittee do not indicate the discharge of pollutants causing toxicity, the draft permit proposes that the permittee develop and implement a standard operating plan (SOP) to prevent/minimize the discharge of such pollutants from the permitted facility into Pago Bay. The SOP would include Best Management Practices (BMPs) for the operation and maintenance of the seawater system;
descriptions of the application of effluent treatment technologies; management practices regarding the seawater system (including animal aquaria) cleaning procedures; animal feeding

practices; and a chemical/other deleterious substance management plan. This requirement is necessary to assure proper operation of all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit (see 40 CFR 122.41(e)).

III. INFORMATION AND COPYING:

Any persons wishing further information may write to the address below or call Gary Sheth of USEPA Region 9 at (415)744-1921. Copies of materials in the Administrative Record that are public records can be viewed and copied between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday (excluding holidays) at USEPA Region 9's Office in San Francisco, California. The Final permit and fact sheet may also be available from USEPA Region 9's website at: http://www.epa.gov/region9/water/npdes/permits.html.

IV. REOPENER:

The permit contains a reopener for instances when monitoring indicates that the discharges cause, have reasonable potential to cause, or contribute to excursions above water quality objectives. Under those circumstances, the permit may be reopened to impose water quality-based limits and/or whole effluent toxicity limits.